

base; the stipular appendages, which are present on the middle cauline leaves, deeply laciniate; involucre bracts rather rigid, acute, erect or spreading, seldom reflexed.

No. 2. Stem, peduncles, involucre, and bracts densely covered with a very short brown glandular pubescence with only occasional white jointed hairs; leaves not flat but conspicuously curled or "crisped," the upper cauline larger and more numerous than in no. 1, sessile with very broad cordate clasping bases; stipular appendages of the others subentire or toothed, but not deeply laciniate; scales of the involucre long-acuminate, thinner than in no. 1, and nearly always abruptly reflexed. Blooms late in October, a month or more after the other. I have thus far been unable to detect any difference in the flowers, except that the rays of no. 2 are distinctly paler than no. 1.

Unfortunately it is not known from what localities the plants in the Harvard Garden were taken. On comparing them with the specimens in the Gray Herbarium, I find that the first is the more usual form; while only one specimen in the herbarium (from Lexington, Ky., collected by Short,) approaches nearly to no. 2.

It has long been recognized that *S. laciniatum* is subject to considerable variation in stem and foliage, and efforts have accordingly been made from time to time to separate as varieties or even distinct species some of the more remarkable forms of this polymorphic plant. In these attempts, however, the distinctions have been based chiefly upon such characters as the depth to which the leaves were divided, the paniculate or subspicate inflorescence, the presence of copious resin, etc., which have proved unsatisfactory for systematic purposes; since the division of the leaves, and character of the inflorescence are very variable, even in the same individual. It remains to be seen whether the characters here described will be found more serviceable. Most important among them, I think, is the nature of the pubescence, as there the difference is scarcely one of degree, but rather of kind.

As I hope to continue my study of the forms of *S. laciniatum*, I should be much indebted for specimens of, or facts concerning this widely distributed species. Information about the range of the glandular-stemmed variety (no. 2), or the possible occurrence of intermediate forms will be especially acceptable.—B. L. ROBINSON, Cambridge, Mass., Dec. 1890.

The propagation of *Ranunculus lacustris* Beck & Tracy.—That little is positively known of the true length of time that this plant lives, is evidenced by the following quotations:

"Perennial by rooting from the nodes, if at all." (Gray's Manual, revised edition, under *R. multifidus*.)

“It probably lives about a year. The seedlings appear late in the autumn, along the banks and in the bottoms of dried up pools ready to make an early growth in the following spring.” (Dr. C. E. Bessey, in *American Naturalist*, May, 1890.)

“On Staten Island, it certainly appears to be perennial.” (Dr. N. L. Britton, in *Bulletin of Torrey Botanical Club*, July, 1890.)

My attention was attracted to the plant early in May, when I found it blooming in great profusion in this vicinity, many of the flowers being double. Its habitat, about Alma, is chiefly shallow ponds, made by the collection of surface water in slight depressions in the clayey soil of the region. These ponds are often dried up early in the summer in dry seasons, particularly since the forests have been cut off. During the latter part of May and throughout June, 1890, there was a long continued drought, so that by the middle of July, very many of these ponds were nearly or quite dry. About this time my interest in *R. lacustris* was renewed by the note in regard to it in the *Bulletin of the Torrey Botanical Club* for July, and I visited some of its favorite haunts to find out what its condition was at that season.

The date as recorded in my note-book was July 21st. The water of the pool was all gone, leaving a soft mud on the bottom and apparently no specimens of the plant alive. On closer examination, however, I found that the plants were there, but in a condition hardly recognizable. The floating stems were prostrate on the mud or partly buried in it, their finely dissected leaves dry and withered or entirely gone. The stems, however, were alive and green, and at the nodes were clusters of small leaves and budding rootlets. Even at this time there were many cases, in which parts of stems had disappeared and the new plants had established themselves. An interesting fact in this connection was the marked brittleness of the stems of the old plants — they broke very readily, so that it was hard to disentangle them from the mud and weeds without snapping them into bits. During the summer I visited the same and similar localities several times, and in a very little while after my first visit I found that all traces of old stems had disappeared, and that the young plants were making vigorous growth and might have been mistaken for seedlings. These plants rooted vigorously, sending out large clusters of threadlike fibrous roots and numerous petiolate three parted leaves, with cleft divisions. The petioles and under sides of the leaves were generally decidedly pubescent. Under the date, Sept. 15th, I find the following in my notes:

“These plants have continued to grow until, in many cases they are four or five inches in height, quite pubescent and in many places so crowded as to densely carpet the dry bed of the ponds in which they

grow." I was unable to decide whether the young plants sent out runners as soon as they were well rooted, but there were some indications that such was the case, as they became densely crowded in places where apparently there were but few specimens in the beginning. If there were such runners they soon disappeared and the plants stopped sending them out. Two other possible explanations suggested themselves to me; one, that such part of the stems of the old plants as were well covered with mud retained their vitality much longer than those not so protected, and appeared like runners, as the surface of the mud became drier and shrunk away; the other, that part of these young plants were seedlings, but if they were such their growth was exceedingly rapid, for the plants in given clusters were very nearly of the same size. At the date given above, the axes of the plants had not increased materially in length. The leaves were practically all radical and because of the crowded condition of the plants, long petioled. Shortly after the middle of September the fall rains set in, and water began to collect again in the ponds. At this time the stems began to grow, at first with very short nodes, but later, as the water became deeper, with longer ones. The greater number of plants sent out branches from the nodes of the stem even when the internodes were short. As the water grew deeper during the fall, the leaves which were submerged died and new ones, more finely cut, replaced them, and by the time the plants were entirely covered the foliage was as finely dissected as that of the aquatic flowering form. On the 18th of October I found two plants in bloom. The water had hardly reached them and the stems were trailing with rootlets projecting from the underside of the nodes. The leaves of these specimens were petiolate and between the dissected form of the aquatic plant and the cleft and parted form characteristic of the terrestrial plants of the summer. The flowers were somewhat smaller than the usual aquatic ones. On my last visit made late in November, just as the ice was beginning to form, I found that the depth of water in the ponds had materially increased and that the submerged plants had made strong and rapid growth, and were entirely typical in foliage and other particulars. The summer leaves were all dead and brown, while the new ones were green and vigorous. Some plants which I had transplanted above high water mark, were still living, but showed no marked growth as in those under water, and the leaves were unchanged. From these considerations, if we consider the observed conditions of growth and propagation normal, and there is no evidence to the contrary, our plant is truly perennial, since the old stems live long enough to nourish and thoroughly establish the plantlets which develop at their nodes

after the flowering season is over.—CHAS. A. DAVIS, *Alma College, Alma, Mich.*

Cornus Baileyi C. & E. in Oregon.—In the revision of Cornaceæ (Coulter and Evans), under the discussion of the relationship of *C. stolonifera* Michx., *C. pubescens* Nutt., and *C. Baileyi* C. & E.¹ the prediction was made that *C. Baileyi* might be found along the Pacific coast and its ranges, where it had descended from its already known habitat of British America, and that it would be confounded with *C. pubescens*. Such has since proved to be the case. In a package of plants recently received from Messrs. Drake & Dickson, Portland, Oregon, there was found an undoubted specimen of *C. Baileyi* from Castle Rock, Columbia River, Oregon, bearing the date June 1889 as to flowers, the fruit evidently being of later collection. As in the east, *C. Baileyi* has been confused with *C. stolonifera* on account of the presence of some appressed pubescence, so here it had been labeled *C. pubescens*, evidently on account of the rather loosely pubescent under surface of the leaves. But an examination with a lens showed the presence of both appressed and wooly pubescence, such as is found in *C. Baileyi* and not in either of the others. The stone in this specimen is nearly twice as broad as high, is prominently flattened, has the square-shouldered top of typical *C. Baileyi*, and has its rather deeply furrowed edge. This combination of characters can leave no doubt as to the occurrence of *C. Baileyi* on the west coast. It is highly probable that forms may be found not so well defined as this one, and the presence of all three of these nearly related species will give more or less trouble when approaching each other, yet the extreme forms should give no cause for difficulty in determination.—WALTER H. EVANS, *Indianapolis, Ind., Herbarium Eli Lilly & Co.*

NOTE.—A private letter from E. J. Hill, of Englewood, Ills., makes the following statements concerning *C. Baileyi*: "My first note on it was in Sept. 1875, and it was called *C. stolonifera*. But studying this lake shore shrub in other years it seemed *C. sericea*, but the fruit was not colored rightly. It was too ruddy a shrub for *C. paniculata*, and so has remained a source of doubt till your characterization appeared. Noticing them the other day (January) while taking a trip in the Pine Barrens, the color of the canes of the two contrast considerably. When the leaves are off, we get the color to the best advantage. Those of *C. stolonifera* are very bright red and glossy in winter, of a hue almost crimson, while those of *C. Baileyi* are duller, a little of the brick-red cast. I think one could be pretty sure of identity in the winter, from this character alone."

J. M. C.

¹Bot. Gazette, xv. pp. 38 and 88.